Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for estimating data received from a plurality of data signals in a code division multiple access communication system, the data signals transmitted in a shared spectrum at substantially a same time, the method comprising:

receiving and sampling a combined signal of the transmitted data signals over the shared spectrum;

estimating a channel response for the transmitted data signals; and

estimating data of the data signals using the samples, the estimated channel response and a ~~fourier transform~~ Fourier Transform based data estimation approach and iteratively reducing an error in the data estimation introduced from a circulant approximation used in the ~~fourier transform~~ Fourier Transform based approach.

2. (Currently Amended) The method of claim 1 wherein the ~~fourier transform~~ Fourier Transform based data estimation approach is a ~~fast fourier transform~~ Fast Fourier Transform based data estimation approach.

3. (Currently Amended) The method of claim 1 wherein the ~~fourier transform~~ <u>Fourier Transform</u> based data estimation approach uses a single user detection based data estimation approach.

4. (Currently Amended) The method of claim 1 wherein the ~~fourier transform~~ <u>Fourier Transform</u> based data estimation approach uses a multiuser detection based data estimation approach.

5. (Withdrawn) A method for reducing errors in solving a matrix linear equation using a fourier transform based approach, the solution to the linear equation used to estimate data in a received signal comprising a plurality of data signals, the method comprising:

(a) providing the matrix linear equation;

(b) determining an initial solution of the matrix linear equation using a fourier transform based approach and a circulant approximation of a first matrix of the linear equation;

(c) determining an error correction term using the initial solution and a difference between the first matrix and the circulant approximation of the first matrix; and

(d) adding the error correction term to the initial solution as a next solution of the linear equation.

6. (Withdrawn) The method of claim 5 further comprising:

(e) determining a next error correction term using the next solution and a difference between the first matrix and the next solution;

(f) adding the next error correction term to the next solution as a subsequent solution; and

(g) repeating steps (e) and (f) a plurality of times with the subsequent solution acting as the next solution in steps (e) and (f).

7. (Withdrawn) The method of claim 6 wherein the repeating steps (e) and (f) is performed a fixed number of times.

8. (Withdrawn) The method of claim 6 wherein the repeating steps (e) and (f) is performed until the difference between the next and subsequent solution is a 0 vector.

9. (Withdrawn) The method of claim 6 wherein the repeating steps (e) and (f) is performed until the difference between the next and subsequent solution is less than a threshold.

10. (Withdrawn) A method for selectively reducing errors in estimating data received from a plurality of data signals in a code division multiple access communication system, the data signals transmitted in a shared spectrum at

substantially a same time, the method comprising:

receiving and sampling a combined signal of the transmitted data signals over the shared spectrum;

estimating a channel response for the transmitted data signals; and

estimating data of the data signals using the samples, the estimated channel response and a fourier transform based data estimating approach, the fourier transform based data estimating approach using a circulant approximation;

providing an error correction device, the error correction device capable of reducing an error in the data estimation introduced from the circulant approximation in the fourier transform based approach; and

selectively using the error correction device to reduce the error in the data estimation.

11. (Withdrawn) The method of claim 10 wherein the error correction device iteratively reduces the error in the data estimation and the method further comprising controlling a number of iterations performed by the error correction block.

12. (Currently Amended) A receiver for use in a code division multiple access communication system, the receiver comprising:

an antenna for receiving a combined signal of transmitted data signals, the transmitted data signals transmitted in a shared spectrum at substantially a same

time;

a sampling device for estimating a channel response for the transmitted data signals;

a data estimation device for estimating data of the transmitted data signals using the samples, the estimated channel response and a ~~fourier transform~~ <u>Fourier Transform</u> based data estimation approach; and

an error correction device for reducing an error in the data estimation introduced from a circulant approximation in the ~~fourier transform~~ <u>Fourier Transform</u> based data estimation approach.

13. (Currently Amended) The receiver of claim 12 wherein the ~~fourier transform~~ <u>Fourier Transform</u> based data estimation approach is a ~~fast fourier~~ <u>Fast Fourier Transform</u> based data estimation approach.

14. (Original) The receiver of claim 12 wherein the error correction device iteratively reduces the error in the data estimation.

15. (Original) The receiver of claim 12 wherein the error correction device is selectively utilized to reduce the error in the data estimation.

16. (Original) The receiver of claim 12 wherein the error correction device reduces the error by determining an error correction term using a difference

between an unapproximated matrix and a circulant approximated matrix used by the data estimation device and a first estimate output by the data estimation device, and adding the error correction term to the first estimate as a next estimate.

17. (Original) The receiver of claim 16 wherein the error correction device iteratively produces subsequent estimates using the next estimate.

18. (Original) The receiver of claim 17 wherein the iteratively producing subsequent estimates is performed a fixed number of times.

19. (Original) The receiver of claim 17 wherein the iteratively producing subsequent estimates is performed until a difference between a last two of the subsequent estimates is a 0 vector.

20. (Original) The receiver of claim 17 wherein the iteratively producing subsequent estimates is performed until a difference between a last two of the subsequent estimates is less than a threshold value.

21. (Currently Amended) A receiver for use in a code division multiple access communication system, the receiver comprising:

means for receiving a combined signal of transmitted data signals, the transmitted data signals transmitted in a shared spectrum at substantially a same

time;

means for estimating a channel response for the transmitted data signals;

means for estimating data of the transmitted data signals using the samples, the estimated channel response and a ~~fourier transform~~ <u>Fourier Transform</u> based data estimation approach; and

means for reducing an error in the data estimation introduced from a circulant approximation in the ~~fourier transform~~ <u>Fourier Transform</u> based data estimation approach.

22. (Currently Amended) The receiver of claim 21 wherein the ~~fourier transform~~ <u>Fourier Transform</u> based data estimation approach is a ~~fast fourier~~ <u>Fast Fourier Transform</u> based data estimation approach.

23. (Original) The receiver of claim 21 wherein the error reducing means iteratively reduces the error in the data estimation.

24. (Original) The receiver of claim 21 wherein the error reducing means reduces the error by determining an error correction term using a difference between an unapproximated matrix and a circulant approximated matrix used by the data estimation device and a first estimate output by the data estimation device, and adding the error correction term to the first estimate as a next estimate.

25. (Original) The receiver of claim 24 wherein the error reducing means iteratively produces subsequent estimates using the next estimate.

26. (Original) The receiver of claim 25 wherein the iteratively producing subsequent estimates is performed a fixed number of times.

27. (Original) The receiver of claim 25 wherein the iteratively producing subsequent estimates is performed until a difference between a last two of the subsequent estimates is a 0 vector.

28. (Original) The receiver of claim 25 wherein the iteratively producing subsequent estimates is performed until a difference between a last two of the subsequent estimates is less than a threshold.